DOCUMENT RESUME

ED 417 666 HE 031 122

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TITLE African American College Students' Experiences in HBCUs and PWIs and Learning Outcomes.

INSTITUTION National Center on Postsecondary Teaching, Learning, and Assessment, University Park, PA.

SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.

PUB DATE 1997-05-00

NOTE 23p.; Paper presented at the Annual Meeting of the Association for Institutional Research (Orlando, FL, May, 1997).

CONTRACT R117G10037

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Black Colleges; *Black Students; *Cognitive Development; College Freshmen; *College Students; Higher Education; Longitudinal Studies; Student Development; *Student Experience

IDENTIFIERS *African Americans; *National Study of Student Learning

ABSTRACT

This study examined whether African-American students who attend historically black colleges and universities (HBCUs) have different experiences and perceive the campus climate differently than African American students who attend predominantly white institutions (PWIs). The study also examined whether differences in experiences and perceptions of the environment are linked to differential gains in cognitive abilities. The study used data from the National Study of Student Learning, a three-year longitudinal study of about 4,000 students who entered 23 institutions in 1992. Data were gathered in the fall of 1992 and the spring of 1993 and included demographic characteristics, scores on the Collegiate Assessment of Academic Proficiency, and responses on the College Student Experience Questionnaire. Students in HBCUs differed from their peers in both entering characteristics and college experiences in a variety of areas. These experiences, however, were not associated with differences in first year cognitive gains. (Contains 38 references and 3 tables.) (DB)

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AFRICAN AMERICAN COLLEGE STUDENTS' EXPERIENCES IN HBCUs AND PWIs AND LEARNING OUTCOMES

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Paper presented at the meeting of the Association for Institutional Research, Orlando, FL, May 1997. This study was supported by the National Center on Postsecondary Teaching, Learning, and Assessment, funded in part by the U.S. Department of Education, Office of Educational Research and Improvement (OERI) under Grant No. R117G10037. The opinions herein do not necessarily reflect the position or policies of OERI, and no official endorsement should be inferred.

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AFRICAN AMERICAN COLLEGE STUDENTS' EXPERIENCES IN HBCUs AND PWIs AND LEARNING OUTCOMES

Abstract

This study examined whether African-American students who attend historically black colleges and universities (HBCUs) have different experiences and perceive the campus climate differently than African American students who attend predominantly white institutions (PWIs). The study also examined whether differences in experiences and perceptions of the environment are linked to differential gains in cognitive abilities. Students in HBCUs differed from their peers in both entering characteristics and college experiences in a variety of areas. These experiences, however, were not associated with differences in first-year cognitive gains.

In the past two decades, the number of students attending historically black colleges and universities (HBCUs) has increased some 26 percent. Currently, 16 percent of all African American students attend an HBCU (Cross, 1997), and those institutions generate 40 percent of all bachelor's degrees and 30 percent of all master's degrees earned by African- American students (Garibaldi, 1991).

What makes these institutions so productive for African American students? The evidence (see below) indicates that the college experience for African-American students at HBCUs, when compared with that of their black peers attending a PWI, is more positive in a number of ways. Because of these differences, a small but rich collection of studies has sought to pinpoint what makes the HBCU experience sweeter for African-American students than that at predominantly white institutions (PWIs). For African-American students, HBCUs (compared to PWIs) appear to provide greater satisfaction, social support, and faculty support, as well as fewer racist incidents and sentiments (Nettles, et al., 1986; Allen, 1987; Allen, Epps & Haniff, 1991; Pascarella & Terenzini, 1991). With a few exceptions (e.g., Wenglinsky, 1996, who found no differences in the quality of students' social interactions), the research portrays students at HBCUs (compared to those at PWIs) as more engaged, better adjusted, and more committed to college life (Fleming, 1984). Black students at black colleges have also been found to be more integrated into campus life, to perceive their college as providing more institutional support (Davis, 1994), and to report higher levels of social involvement and more favorable relationships with professors (Allen, 1992). The HBCU experience is said to offer more nurturing, more congruent mentoring, more appropriate remediation, more cultural and extra-curricular activities, a better social life, and less racial harassment whether institutional or from peers (Cross, 1994).

Several theories (e.g., Astin, 1983; Pace, 1975; Tinto, 1987) assert that involvement, a sense of belonging, and a sense of social and academic membership engender greater growth and accomplishment. Such theories would lead one to expect greater positive outcomes for black students at HBCUs than for those at PWIs. In fact, significant positive effects on persistence, for example, remain even when controls are made for precollege characteristics,

college GPA, and several other institutional effects (Astin, 1975; Thomas, 1981). In addition, greater professional development and socioeconomic benefits have also been associated with HBCU (vs. PWI) attendance (Astin, 1977; Pascarella, Smart & Stoecker, 1989). According to Wenglinsky (1996), black students at HBCUs are more likely to go to graduate school or to seek a professional career than are their counterparts at PWIs, and attending an HBCU has been shown to have long-term economic benefits (e.g., Constantine, 1994, 1995; Solnick, 1990). Constantine, for example, found an eventual income advantage of 38% for blacks who attended HBCUs rather than PWIs.

Relatively few studies, however, have examined the cognitive outcomes for black students of attending an HBCU rather than a PWI. Are students' cognitive or intellectual skills affected by the racial composition of the institutions they attend? The question has not be explored extensively or in any detail. Fleming (1984) found that Black students at a HBCUs evidenced greater cognitive differences between their first and last undergraduate years. Ayers (1983) compared scores on the National Teachers' Examination (NTE) obtained by African-American HBCU and PWI students to find that the black students at predominantly white schools had higher scores, even after precollege aptitude was controlled.

Earlier researchers found no significant differences between students at HBCUs and PWIs in Graduate Record Exam (GRE) scores when precollege aptitude (such as the ACT and NMSQT scores) were controlled (Centra, Linn, & Parry, 1970; Astin, 1968). Because their samples included both black and white students, however, the findings provide little clarification of the effects of campus racial composition for black students. In addition, as Bohr, Pascarella, Nora, and Terenzini (1995) note, earlier studies of cognitive differences are limited by dated or cross-sectional samples, non-representative samples, and the use of instruments which were created to evaluate professional development and graduate school potential, not cognitive development.

The studies of Bohr, et al. (1995) and Pascarella, et al. (1996), which employ the Collegiate Assessment of Academic Proficiency (CAAP) solve many of the methodological problems of cognitive measures such as the NTE and GRE which were not intended to describe general cognitive growth in college. Using the CAAP, Bohr and her colleagues (1995) found no significant differences, when salient precollege differences were controlled, in freshman year-end reading, math, or critical thinking scores of black students at a HBCUs versus those attending a PWI. Pascarella, et al. (1996) found no HBCU-PWI differences between CAAP science reasoning scores for second-year black students, but found significantly higher scores in writing for second-year black students at historically black colleges and universities.

If environmental comfort and involvement do engender greater growth, it would seem that researchers would discern relationships between the positive environmental features of HBCUs and their students' cognitive and learning development. Constantine (1994) suggests directly that an attempt be made to link learning with the college experience. Recent studies

begin to address these questions (Allen, 1992; Davis, 1994; DeSousa & Kuh, 1996; Watson & Kuh, 1996). Such cognitive or intellectual outcome measures as grade-point average or self-reported estimations of cognitive gains, however, shed only a partial light on the nature of any relation between institutional racial composition and the dynamics they facilitate, on the one hand, and students' cognitive development on the other.

This study sought to answer two questions: (1) Do the college experiences of African American students attending historically black colleges and universities (HBCUs) differ from those of their African American peers attending predominantly white institutions (PWIs)?, and, if so, (2) Do these differences, after controlling students' precollege characteristics (including entering level of cognitive development), lead to differential cognitive gains during the first year in college?

Methods

Conceptual Framework

The basic conceptual model for this study (see Figure 1) is longitudinal and draws upon many of the elements of recent conceptualizations of college impact (e.g., Astin, 1985; Pascarella, 1985; Tinto, 1975, 1987; Weidman, 1989). The model hypothesizes six sets of constructs defining a causal sequence that begins when students come to college with a wide array of educationally-relevant background characteristics (including level of cognitive development). These precollege characteristics are presumed to influence not only the outcomes of college directly, but also students' course-taking patterns, formal classroom experiences, and out-of-class experiences during college, which, in turn, also shape educational outcomes. The interplay between and among these sets of influences on learning takes place, of course, within a particular institutional context (e.g., organizational characteristics, policies, structures, and culture).

The present study is not a test of the validity of the causal structure of this model. The model does, however, serve two, useful purposes. First, it identifies those categories of variables that have potential for shaping educational outcomes (in this case, African American students' cognitive development). Second, it suggests a causal sequence that forms the basis of the analyses undertaken to answer Question #2 above. In addressing that question the study estimates the influence on first-year cognitive gains by those aspects of college (i.e., curricular, classroom, and out-of-class experiences, as well as selected institutional characteristics) on which Black students at HBCUs and PWIs may differ. These estimates are made after taking into account certain of the precollege characteristics on which the two groups of students differ, including initial reading, math, and critical thinking abilities.

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Institutional Sample

This study is part of the National Study of Student Learning (NSSL), a three-year longitudinal, national study of some 4,000 new students who, in the Fall of 1992, entered 18 four-year and 5 two-year colleges and universities nationwide. NSSL was conducted by the National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA), a national research and dissemination center funded by the U.S. Department of Education's Office of Educational Research and Improvement (OERI).

The initial sample in this study was selected from incoming students new to the 18 four-year colleges and universities located in 16 states throughout the U.S. Institutions were selected from the National Center on Education Statistics' Integrated Postsecondary Education Data System (IPEDS) to represent differences in colleges and universities nationwide on a variety of characteristics, including institutional type and control (e.g., private and public research universities, private liberal arts colleges, public and private comprehensive universities, two-year colleges, historically Black colleges), size, geographic location, commuter versus residential character, and the racial/ethnic distribution of the undergraduate student body. In the aggregate, the student population of those 18 schools approximated the national population of four-year institution undergraduates by race/ethnicity and gender. Two of the 18 four-year institutions were HBCUs. One was a public institution located in a mid-Atlantic state, and the other was a private institution in a southern state. The comparison group consisted of African American students attending the 16 predominantly white institutions in the sample.

Student Sample and Instruments

The initial data collection took place in the Fall of 1992. Each of the 23 participating institution was given a target sample size relative in magnitude to the respective sizes of the entering class at each institution. Insofar as possible, students at each institution were sampled randomly from among new students, and the overall target sample was 5,000 students. The overall obtained sample size (i.e., those students actually participating) in the Fall, 1992 data collection was 3,840, a participation rate of 76.8 percent. Among the 18 four-year schools, 3,331 students participated (a response rate of 85.2%).

The initial data collection lasted approximately three hours. Students were advised that they were participating in a national, longitudinal study of student learning and would be paid a $25 stipend for their participation. They were also advised that the information they provided would be kept confidential, would never become part of their institutional records, and that all that was expected of them was a good-faith effort on the test modules (see below) and a candid response to all other questionnaire items.

An NCTLA-developed precollege survey form gathered information on student demographic characteristics and background, as well as their aspirations, expectations of

college, and orientations toward learning. Participants also completed Form 88A of the Collegiate Assessment of Academic Proficiency (CAAP). The CAAP was developed by the American College Testing Program (ACT) specifically to assess selected general skills typically acquired by students during the first two years of college (ACT, 1989). The total CAAP consists of five, 40-minute, multiple-choice test modules, three of which—reading, math, and critical thinking—were used in this study.

A follow-up testing of the sample took place in the Spring of 1993. This data collection required about three and one-half hours and included Form 88B of the CAAP, Pace's (1984) College Student Experience Questionnaire (CSEQ) to measure students' first-year experiences in college, and a specially-designed follow-up survey form assessing aspects of students' first-year experiences not covered by the CSEQ. Students were paid a second stipend ($35) for their participation. Of the original sample of 3,331 students attending a four-year institution, 2,416 (72.5%) also took part in the Spring, 1993 data collection. Of these respondents, 439 were African American students. Of that number, however, 410 had provided complete information on all variables used in the analyses for this study. Of the 410 usable respondents, 246 (60%) attended one of the two HBCUs while 164 had enrolled in a PWI.

Given the high response rates at both testings, it is not particularly surprising that the sample was reasonably representative of the population from which it was drawn. Nonetheless, to adjust for potential response bias by gender, ethnicity, and institution, a sample weighting algorithm was developed. Specifically, within each individual institution, participants in the follow-up data collection were weighted so as to be representative of their institution's first-year population by gender (male or female) and ethnicity (white, Black, Hispanic, or other). The effect of applying sample weights in this manner was to adjust not only for response bias by gender and ethnicity, but also for differential response rates across institutions. Given NSSL's institutional the sampling plan and the weighting of individual respondents within each institution, the weighted aggregate sample of students across all institutions is reasonably representative of the fall, 1992 national population of first-year students with respect to gender and ethnicity.

Variables

The dependent variable in the analyses for Question #2 was the average of the Spring, 1993 scores on the CAAP reading, math, and critical thinking tests. The CAAP reading test contains 36 items that assess reading comprehension as a product of skill in inferring, reasoning, and generalizing. Passages cover topics in fiction, the humanities, the social sciences, and the natural sciences. The KR-20 internal consistency reliabilities for the reading test range between .84 and .86. The 35-item mathematics test measures a student's ability to solve mathematical problems encountered in many postsecondary curricula. The emphasis is on quantitative reasoning rather than formula memorization. The content areas tested include pre-, elementary, intermediate, and advanced algebra; coordinate geometry; trigonometry, and

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introductory calculus. The KR-20 reliability coefficients for the math test range between .79 and .81. The critical thinking module is a 32-item measure of a student's ability to clarify, analyze, evaluate, and extend arguments. Each of four passages presents a series of subarguments that support a more general conclusion. Each passage is accompanied by a set of multiple choice questions. The KR-20 reliability coefficients range from .81 to .82 (ACT, 1989). In a pilot test with a sample of 30 college students, the CAAP critical thinking module scores correlated .75 with the total score on the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980).

Following the conceptual framework for this study, five sets of independent variables were developed. The selection of variables within each set was guided by the results of previous studies that indicated differences in the characteristics or experiences of African American students at HBCUs and PWIs. In a few cases, speculation and the availability of an item in the dataset was the basis for selection.

The first set contained eight precollege characteristics, treated as control variables in this study. This set of variables included students' gender, age, degree aspirations, parents' education, total family income, the racial composition of the student's high school, the racial composition of the student's neighborhood, and the average of the student's precollege scores on the CAAP reading, math, or critical thinking tests.

Four additional sets of independent variables were developed, each operationalizing to varying degrees a portion of the conceptual framework shown in Figure 1. Curricular experiences were operationalized by a single item: the total number of credit-hours completed during the first year. Students' formal academic experiences were reflected in three scales reflecting students' interactions and relations with faculty members. One scale assessed the effects of student-faculty interactions on students' intellectual growth. The second scale measured students' perceptions of faculty members' concern for student development and teaching, while the third variable reflected students' perceptions of faculty members' approachability.

Six indicators assessed students' out-of-class experiences. This set included whether students lived on- or off-campus, two CSEQ scales reflecting students' participation in clubs and organizations and their campus residence experiences, two scales reflecting students' interactions and relations with their peers (one a measure of the quality of those peer interactions, the other students' perceptions of the competitiveness of the peer environment), and a measure of the encouragement from friends to remain enrolled.

The contextual characteristics of students' institutions were evaluated by 3 variables: students' perceptions of administrators' interest in and openness to students, and two measures of students' perceptions of the racial/ethnic climate on their campus.

The literature also suggests likely differences between the groups on more general attitudes and satisfaction levels. Thus, the study also included four additional variables reflecting students' estimates of the likelihood that they would complete their undergraduate degree, the likelihood that they would transfer to another institution, their overall satisfaction with their institution, and the probability they would choose to attend the same institution if they had to make the choice again.

Analytical Procedures

The study employed a pretest-posttest quasi-experimental design. Members of the two groups were statistically equated on salient precollege characteristics. As a preliminary step in the analytical process, an analysis of covariance for the dependent measure (composite cognitive development) was done. The overall influence of attending an HBCU vs. a PWI was estimated while controlling for the effects of all eight precollege characteristics (the covariates).

To answer Question #1 (whether the groups differ in their college experiences), a series of t-tests were run to determine whether African Americana students attending an HBCU or a PWI differed to a statistically significant degree in their reports of their first-year college experiences. A setwise, hierarchical OLS regression with group membership as a dichotomous dependent variable was then done to identify those experience variables that differentiated the two groups while controlling for students' precollege characteristics and all other college experience variables in the analysis. (OLS was used rather than discriminant function analysis because of the former's greater ease of interpretation and familiarity for most readers, and because of the mathematical equivalency of OLS with a dichotomous dependent variable and two-group discriminant function analysis.) The beta weights (standardized regression coefficients) were used to identify the specific experiences on which the groups differed significantly after controlling for precollege characteristics and all other variables in the analysis.

To answer Question #2 (whether any group differences in students' college experiences had differential effects on first-year cognitive development), a three-step, setwise, hierarchical regression was used. In the first step, students' year-end, composite cognitive development scores (the average of their scores on the CAAP reading, math, and critical thinking modules) were regress on students' precollege characteristics, including their precollege composite cognitive development score. In the second step, the college experience variables on which the groups differed (from the analyses for Question #1) were entered. Finally, to test whether the college experiences on which the groups differed had differential educational effects on cognitive development for students attending an HBCU vs. a PWI, a set of cross-product interaction terms was entered (group membership x each of the college experience variables on which the two groups differed). If the addition of the interaction terms produced a statistically significant increase in the magnitude of the R^2 over that obtained in the full, main effects model (i.e., the one containing all precollege characteristics

and college experiences on which the two groups differed), then the significance of the regression weights would be examined to identify those interaction terms which indicated a non-chance, differential effect.

Results

The analysis of covariance results indicated that when all eight covariates were controlled, there were no statistically significant differences between African American students attending an historically black institutions and those attending a predominantly white institution. This finding indicates there are no significant group differences in freshman-year gains in composite cognitive development after controlling for initial differences. How students reached their year-end level of cognitive development, could well vary with the environmental conditions on the two types of campuses. Whether such experiential and perceptual differences exist at all was the topic of Question 1.

Question #1: Differences in Experiences

Table 1 reports the means and standard deviations for African American students attending an historically black institution and those attending a predominantly white institution. The statistical significance of any differences is also reflected there (as indicated by simple t-tests). As can be seen in the table, the two groups differed on 20 (80%) of the 25 variables on which the two groups were contrasted: 6 of 8 background characteristics and 14 of 17 college experience variables. With respect to background characteristics, African American students at an HBCU (contrasted with those attending a PWI) were more likely to be younger, female, have wealthier and better-educated parents, have higher degree aspirations, and enter college with composite cognitive development scores.

The two groups also differed in their reports of their college experiences. Compared to their peers at PWIs, African American students at an HBCU tended to enroll for more hours, have higher expectations of completing a baccalaureate degree, be satisfied with their college experience, choose the same institution again, live on-campus, receive encouragement from friends to continue their enrollment, have more positive relations with faculty members and peers, perceive faculty members as being concerned with students' development and teaching, be more involved in campus clubs and organization, and report more positive residence hall experiences. Conversely, HBCU students were *less* likely to transfer to another institution, perceive racial discrimination, and perceive campus administrators as "helpful, considerate [or] flexible."

The two groups did not differ with respect to the racial composition of their high schools or neighborhoods, their perceptions of faculty members' approachability, their reports of racial/ethnic harassment, or their perceptions of their peers' competitiveness.

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When differences in the college experiences of the two groups are evaluated while controlling for precollege characteristics and all other college experiences, however, seven variables emerge as most clearly differentiating the two groups. As shown in Table 2 (the regression analysis results), African American students at an HBCU (compared to their peers at PWIs) are likely to enroll for more hours, to live on campus, and to receive encouragement from friends to continue their enrollment. HBCU students are also less likely the their PWI peers to consider transferring to another institution or to perceive racial/ethnic discrimination on their campus. They are also, however, less likely to perceive the peer environment as friendly and supportive; on the contrary, they are more likely to report their relationships with their peers as "competitive, uninvolved, [and] alienat[ing]."

Question #2: Effects of Differences on Cognitive Development

Analyses to answer this question involved the addition of a set of seven cross-product interaction terms to a "main effects" regression model. In that regression, composite achievement was regressed first on background characteristics and the seven college experience variables on which the two groups of African American students differed. Addition of the set of cross-product interaction terms (racial composition of students' institution x each of these seven college experience variables) failed to produce a statistically significant increment in the R^2 above and beyond the variance explained by the main effects model. This result indicates the differences in college experiences of African Americans at an HBCU and those at a PWI are unrelated to end-of-first-year composite cognitive development as measured in this study.

Limitations

This study has several limitations that should be kept in mind in interpreting the results. First, although the sample is multi-institutional and was purposefully selected to include a broad array of institutional types, the 18 colleges and universities in this study were not drawn randomly. Similarly, because only two HBCUs were included in the sample, the results may not be generalizable to all HBCUs. Thus, to an unknown degree, these institutions may not be representative of the national mix of colleges and universities.

Second, although attempts were made in the initial sampling design and subsequent weighting of respondents to yield a sample of students who, in the aggregate, would be representative of the national population of new students entering colleges and universities in the Fall of 1992, the time commitment and work required of each student participant undoubtedly led to some self-selection. One cannot be sure that those who were willing to participate in the study responded in the same fashion as would those who were invited but declined to participate.

Third, while cognitive development is an educational outcome commonly cited as central to the educational mission of all colleges and universities (communications and critical thinking skills were two of the collegiate outcomes designated by the President and the nation's governors as part of the National Educational Goals), these are certainly not the only cognitive dimensions along which students develop during the college years. Alternative conceptualizations of cognitive achievement have been advanced and, had one or more of those other conceptions or another measure of this elusive construct been used, the results might have been somewhat different from those reported here.

Finally, cognitive skills develop over time and at varying rates. This study is limited by the fact that changes in cognitive development were examined after only one year of college. Changes in this area in subsequent years may be greater or smaller than those reported here.

Summary and Conclusions

While the available research is far from conclusive, it indicates that attending an historically black college or university appears to have a modest positive impact on some forms of cognitive development and educational attainment for black students, and a small positive effect on occupational status and on both academic and social self-image among black women (Pascarella & Terenzini, 1991). As Pascarella and Terenzini noted, however, it has been "somewhat difficult to identify the causal mechanism underlying these findings. It has been hypothesized . . . that black colleges provide a social-psychological environment more conducive to black students' social integration and personal development than do predominantly white colleges" (p. 601). No study of which we are aware has attempted to test the hypothesized link between specific features of an academically and socially supportive environment and African American students' cognitive development. This study sought to do precisely that.

First-year African American students attending an historically black institution, when compared with those attending a predominantly white institution differed on nearly all of the precollege characteristics tested. Students at HBCUs were younger, came from families with higher incomes and education levels, had higher degree aspirations, had higher entering scores on reading, math, and critical thinking tests, and were more likely to be female. Black students at HBCUs and PWIs, however, came from neighborhoods and high schools that were roughly similar in their racial composition.

The two groups also differed in their reports of their first-year college experiences. Students at the HBCUs were more confident that they would complete a college degree, enrolled for more hours, and received greater encouragement from their friends to stay in college. In addition, they reported more satisfaction in their relationships with other students (although they also viewed the peer environment as more competitive), had more positive relationships with faculty, perceived greater faculty concern for students and

teaching, and were more involved in clubs, student organizations, and residence life. Students at HBCUs also perceived a more tolerant climate on campus and were more likely to report that their colleges promoted respect for differences. HBCU students, however, had more negative perceptions of the administrators on their campuses, finding them less "helpful, considerate,[or] flexible" than did the black students attending the PWIs. Despite that fact, HBCU students were more satisfied with their choice of institution, were more likely to indicate that would choose the same institution again, and were less inclined to transfer to another institution.

OLS regression results indicated that the most salient factors in differentiating between the two groups included the number of hours enrolled, perceptions of the campus racial climate, the level of encouragement from friends to continue college, perceptions of the competitiveness of the peer climate, and the likelihood of transferring to another college, and perceptions of the helpfulness, considerateness, and flexibility of campus administrators, one of the few experience variables on which HBCUs were rated lower than PWIs.

Several possible explanations present themselves for this last finding. It may be a function of the fact that the students in this study came from only two HBCUs, the unfavorable ratings being an artifact of the institutions involved. More appealing is the possibility that the finding suggests administrators on predominantly white campuses are becoming more aware of, and sensitive to, the needs of African American students on their campuses. Most likely is the possibility that black students on HBCUs may be dissatisfied with the facilities and organizational structures of their colleges (Allen, 1987; Nettles, 1988, cited in Jones, 1995).

When a measure of year-end cognitive development was regressed on these experiential differences and eight measures of students' academic and family backgrounds (including a measure precollege cognitive development), however, the entry of a set of cross-product interaction terms failed to increase significantly the amount of variance in year-end cognitive development explained by students' backgrounds and college experiences. This finding indicates that while African-American students at HBCUs and PWIs differ significantly in their college experiences and perceptions of their institution's environment, those differences appear to be unrelated to cognitive development during the first year of college. These analyses, thus, reinforce findings reported previously indicating significant differences in experiences and perceptions of the campus climate among African-American students at HBCUs and PWIs, with more favorable conditions prevailing on HBCU campuses. The findings do not, however, support the hypothesis that the modest cognitive advantages for black students of attending an HBCU rather than a PWI (e.g., Fleming, 1982, 1984) are attributable to the presence of a more socially and academically supportive environment on predominantly black campuses. The question remains open, of course, whether these differential experience are related to other educational outcomes,

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such as persistence, grade performance and its associated economic and occupational benefits, and various dimensions of psychosocial development.

These findings have implications for both practice and policy. For college and university administrators—particularly those on public campuses seeking to be more responsive to the needs of a growing population of historically disadvantaged college students—the differences in the experiences and perceptions of the collegiate environment among African Americans attending an HBCU (compared with their black counterparts on PWIs) are striking, indeed. The two groups of students differed in their experiences and perceptions on 14 of 17 variables reflecting students' college experiences and perceptions, 12 of which painted a portrait of HBCUs as having an environment supportive of African American students than that found on predominantly white campuses. Four of those 12 differences persisted when precollege differences and all other college experience variables were controlled. While these differences were not associated with differential cognitive gains, these positive characteristics of the HBCUs in this study have been reliably linked in other studies to student persistence and educational attainment among African American students and in the college student population in general (Pascarella & Terenzini, 1991). Such a supportive environment has also been linked to grade performance among both African American and white students and, indirectly, to the occupational and economic advantages associated with getting good grades (Pascarella & Terenzini, 1991). The findings reported in this study and elsewhere clearly suggest that predominantly white institutions have much work to do to improve the campus climate for under-represented groups. The findings also clearly suggest that the persistence and performance benefits to African Americans by HBCUs can be delivered without sacrificing academic or intellectual rigor.

The findings of this study also contribute information to the on-going policy debate over whether historically and predominantly black institutions should continue to receive state or federal financial support. Proponents of that support argue that it is needed to maintain the financial and, therefore, educational viability of a group of institutions with important historical, social, educational, and symbolic significance in the lives of black Americans. Opponents of continued support assert that such public expenditures serve to preserve racial separation in education and to retard progress toward a truly race-blind society. Underlying this debate is the long-standing belief among many that HBCUs may not provide an educational experience equal to that provided by PWIs because of the former's disadvantages in resources thought to be important in delivering an effective education (e.g., academically well-prepared students, library holdings, high quality faculty, up-to-date laboratory and computing equipment, and financial support) (e.g., Bowles & DeCosta, 1971; Jencks & Reisman, 1968; Sowell, 1972). That belief rests on the assumption that an institution's stock of human, material, and financial resources are a valid index of its educational quality and effectiveness. Substantial research, however, indicates that such resources are only marginally related to various measures of educational effectiveness. Indeed, the evidence indicates that educational impact is less a function of resources and more a function of what

institutions do with their available resources in such areas as curricular integration and coherence, the quality and types of instruction offered, the student culture, and student-faculty interactions (Astin, 1993; Pascarella & Terenzini, 1991).

Thus, even if historically or predominantly black institutions are at a disadvantage compared to PWIs in terms of educational resources, they nevertheless provide an environment that has been shown to promote retention and degree completion. Moreover, as this study and others (e.g., Bohr, Pascarella, Nora, & Terenzini, 1995; Pascarella & Terenzini, 1991) show, provision of such a supportive environment does not come at the expense of academic or intellectual rigor. In this study, the African American students attending an HBCU showed end-of-first-year levels of cognitive development equivalent to those of African American students attending predominantly white institutions. The results of this study are consistent with those of others (see Pascarella & Terenzini, 1991) in providing a moderately strong educational argument for the preservation and support of historically black institutions.

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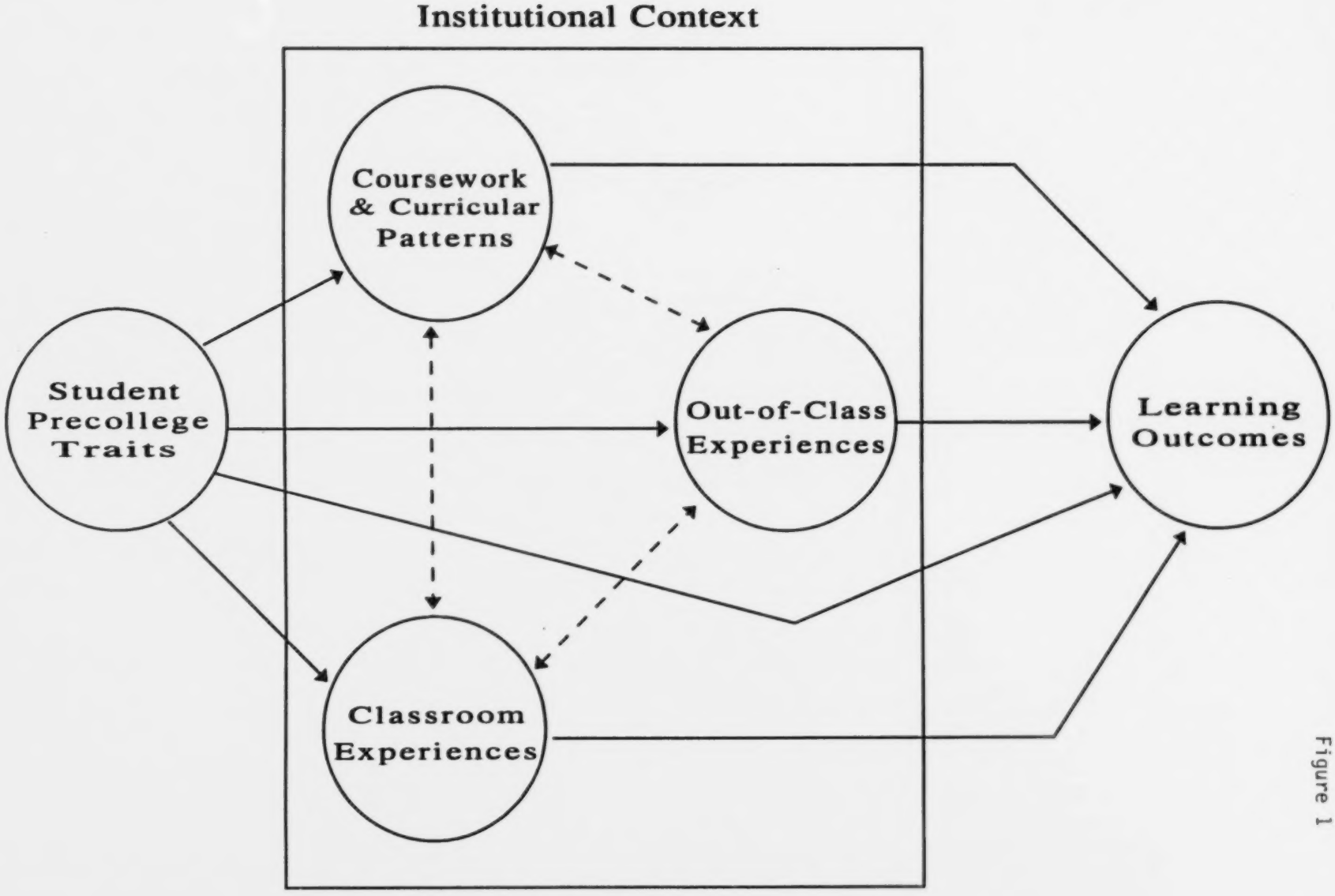
Institutional Context
Coursework & Curricular Patterns
Student Precollege Traits
Out-of-Class Experiences
Learning Outcomes
Classroom Experiences
Reciprocal Causation

Figure 1

Table 1. Items on which African-American students attending HBCUs and PWIs differed significantly (based on t-test)

Variable	Mean		Standard Deviation	
	HBCUs	PWIs	HBCUs	PWIs
Background Characteristics				
Age	18.34	20.91	3.95	8.55***
Gender (0=female; 1=male)	.20	.29	.40	.46*
Family income (14 intervals: 1=less than $6,000; 14=$150,000 or more)	7.59	6.17	3.47	3.59***
Parents' combined education level (1=grammar school or less; 9=professional degree)	10.65	9.08	3.58	3.66***
Standardized composite pre-college CAAP score (reading, math, critical thinking)	100.20	99.70	.73	.87***
Highest degree sought in lifetime, anywhere	4.56	4.15	.72	.89***
Racial composition of high school	2.84	2.77	1.35	1.31
Racial composition of neighborhood (hometown)	2.31	2.32	1.32	1.33
College Experiences				
Hours enrolled—Fall 1992	2.96	2.63	.23	.68***
Expectation of college degree completion	3.97	3.88	.18	.36**
Likelihood of transfer to another institution	2.06	2.50	.88	1.05***
Satisfaction with college experience	3.26	3.11	.66	.78*
Would choose to attend same college again	3.20	2.83	.86	1.00***
Live on-campus	.70	.49	.46	.50***
Encouragement from friends to continue in college (1=no support; 4=extremely supportive)	4.37	3.93	.76	1.08***
Relationships with peers scale	3.89	3.59	.66	.70***
Relationships with faculty scale	3.52	3.33	.77	.81*
Perceived faculty concern for students scale	3.53	3.21	.65	.66***
CSEQ clubs and organizations scale	2.12	1.92	.63	.72**
CSEQ campus residence scale	2.55	2.26	.69	.89**
Perceptions of campus administration	4.34	4.68	1.68	1.59*
Perceptions of racial discrimination scale	2.12	2.56	.59	.79***
Perceptions of harassment/discomfort scale	1.18	1.30	1.08	1.29
Perceptions of competitiveness among students	5.64	5.56	1.19	1.26
Faculty approachability (CSEQ)	5.23	5.02	1.29	1.32

*$p < .05$
**$p < .01$
***$p < .001$

Table 2. Results of the OLS regression to differentiate between African-American students at HBCUs and PWIs

Variable	Beta Weight
Background Characteristics	
Age	-.116**
Gender (0=female; 1=male)	-.044
Family income (14 intervals: 1=less than $6,000; 14=$150,000 or more)	.102*
Parents' combined education level (1=grammar school or less; 9=professional degree)	.055
Racial composition of neighborhood	-.110*
Racial composition of high school	.015
Standardized composite pre-college CAAP score (reading, math, critical thinking)	.092
Highest degree sought in lifetime, anywhere	.083
College Experiences	
Hours enrolled—Fall 1992	.195***
Expectation of college degree completion	-.029
Likelihood of transfer to another institution	-.100*
Satisfaction with college experience	.018
Would choose to attend same college again	.073
Live on-campus	.121*
Encouragement from friends to continue in college (1=no support; 4=extremely supportive)	.127**
Relationships with peers scale	.023
Perceptions of competitiveness among students	-.108*
Faculty approachability	.078
Perceived faculty concern for students scale	.041
Perceptions of faculty	.047
CSEQ clubs and organizations scale	-.063
CSEQ campus residence scale	.036
Perceptions of campus administration	-.165**
Perceptions of racial discrimination scale	-.239***
Perceptions of harassment/discomfort	-.002

*$p < .05$
**$p < .01$
***$p < .001$

Table 3. Partitioning of variance results for regression on standardized composite CAAP score at the end of the first year

Variable	Composite CAAP Score
Variance due to precollege characteristics including the precollege composite CAAP score	.656***
Variance due to collegiate experiences and perceptions	.005
Variance due to addition of interaction terms	.008
Variance Explained	.669***

*p < .05
**p < .01
***p < .001

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